



Please read this entire installation/instruction sheet prior to assembly. We highly recommend using a experienced v-twin mechanic to complete this installation, as improper installation could result in injury and/or damage to the transmission that will void the warranty.

## **1216-0001 GEAR SET INSTALLATION INSTRUCTIONS**

### **5 SPEED GEAR SET REMOVAL**

***NOTE: Leave the transmission case in the frame unless the case itself requires replacement.***

1. Using the OE service manual, drain the transmission and remove all necessary parts to gain access to both ends of the transmission as well as the top of the transmission.
2. Remove the transmission top cover, then remove the shifter cam and shifter fork assemblies.
3. Remove the bearing inner race from the transmission mainshaft using Jims tool part # 34902-84.
4. Remove the final drive pulley by removing the two screws and then the lock plate. Use Jim's tool part # 94660-37A.
5. Remove the six socket head screws from the transmission trap door to free it from the transmission case. Pull the side door, mainshaft and countershaft with gears from the transmission case as a single assembly.
6. Remove and discard the door gasket.
1. Remove main drive gear using
2. Using Jim's bearing remover tool part # 1720, remove the main drive bearing from the transmission case and discard.

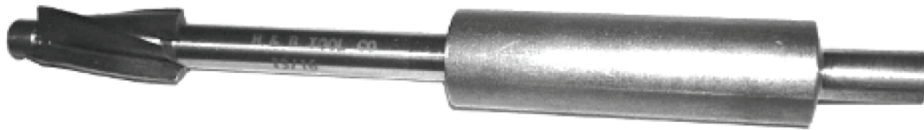
***NOTE: DO NOT USE A HAMMER TO REMOVE THE SIDE DOOR***

### **POWERDRIVE™ 6 SPEED GEAR SET INSTALLATION**

1. Install a new main drive gear bearing per your OE service manual and using Jim's main drive bearing installation tool part # 35316-80.
2. Install a new retaining ring with the beveled edge facing outward. Install the main drive gear in the transmission case using Jim's 35316-80 main drive gear tool.
3. Shorten the shifter shaft sleeve .035" using a reamer & pilot. (See pictures below)



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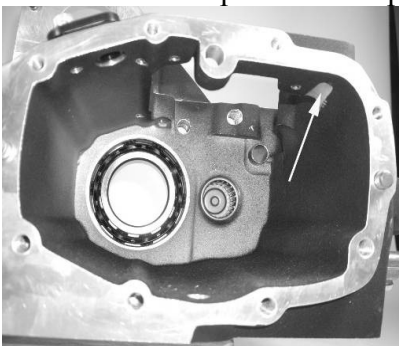
4. Verify that the two locating dowels are in place on the right side of the transmission case and place a new supplied gasket on the dowels. Inserting the mainshaft through the main drive gear, slide the entire RPI PowerDrive™ gear assembly in until the trap door rests against the case. Tighten the four 5/16 inch mounting screws to 13-16 ft-lbs. Tighten the two 1/4 inch screws to 84-108 In-lbs.
5. With the spring side facing the transmission case, install the main drive gear seal using Jim's main drive gear seal installer part # 2256.
6. Check for sharp edges or burrs and remove if necessary, then install spacer sleeve on the main drive gear with chamfer facing inboard.
7. Install the transmission sprocket.
8. Install the belt on the sprocket as the sprocket is installed on the main drive gear. Install the sprocket nut tightening to 60 ft-lbs & then the sprocket nut lock plate. Align the two holes in the lock plate with the threaded holes in the pulley. Use one drop of red thread locker on each bolt and then torque to 90-110 in. lbs.

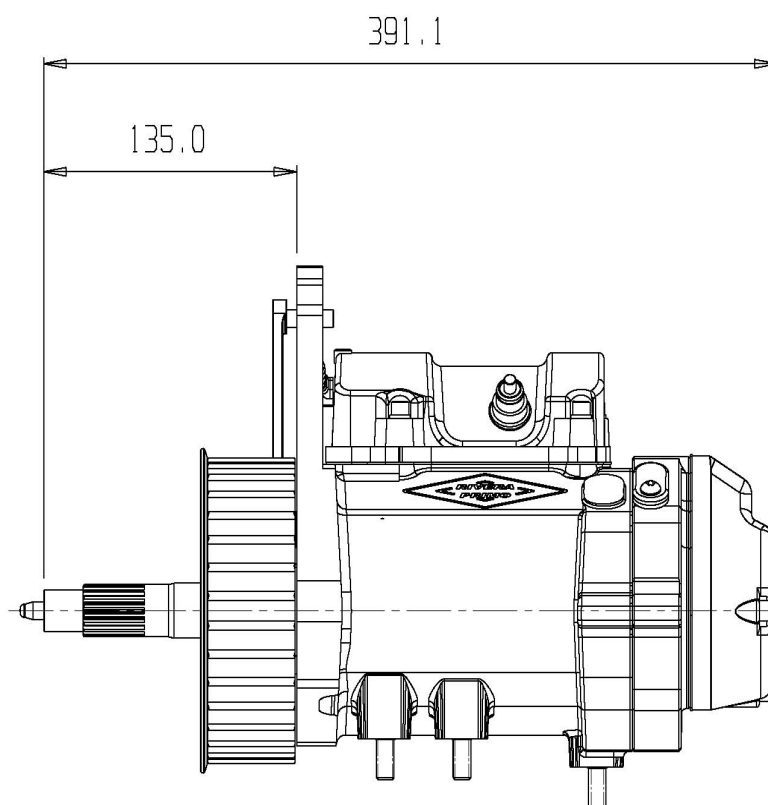
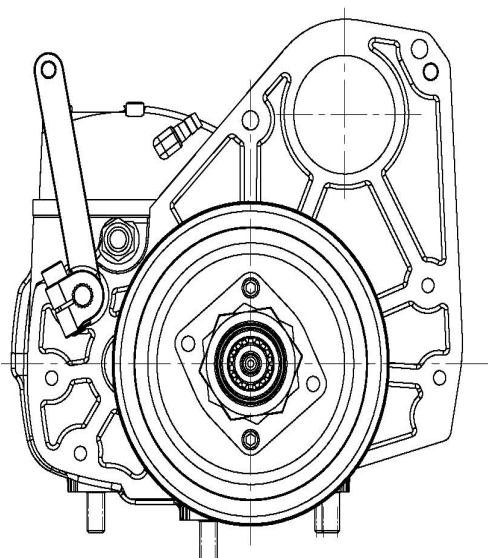
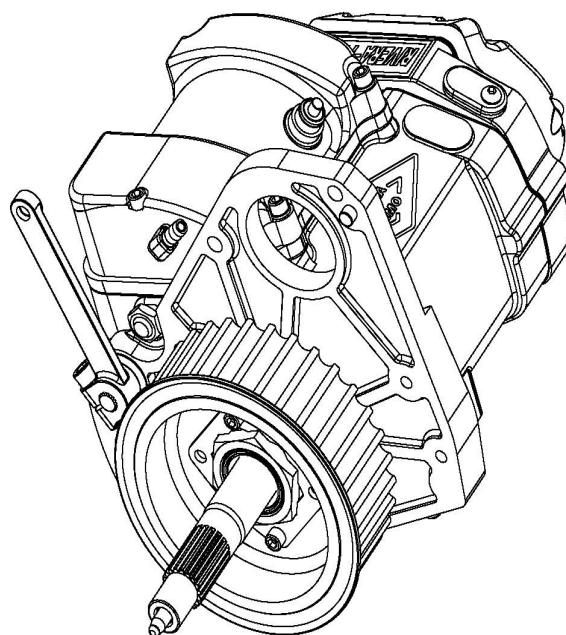
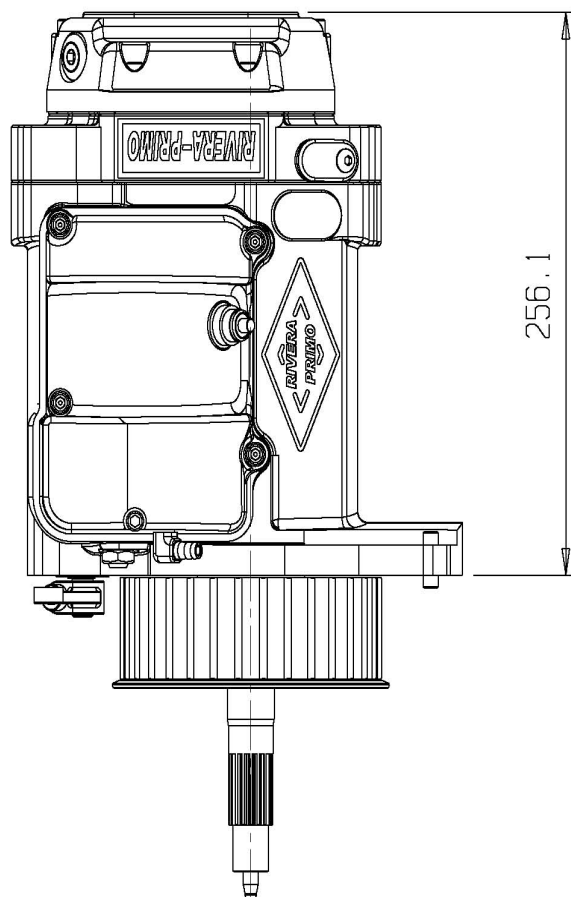
***NOTE: The transmission sprocket nut has left handed threads. You must turn the nut counterclockwise to install on the main drive gear. Do not loosen sprocket nut*** when attempting to align holes on the lock plate and pulley.

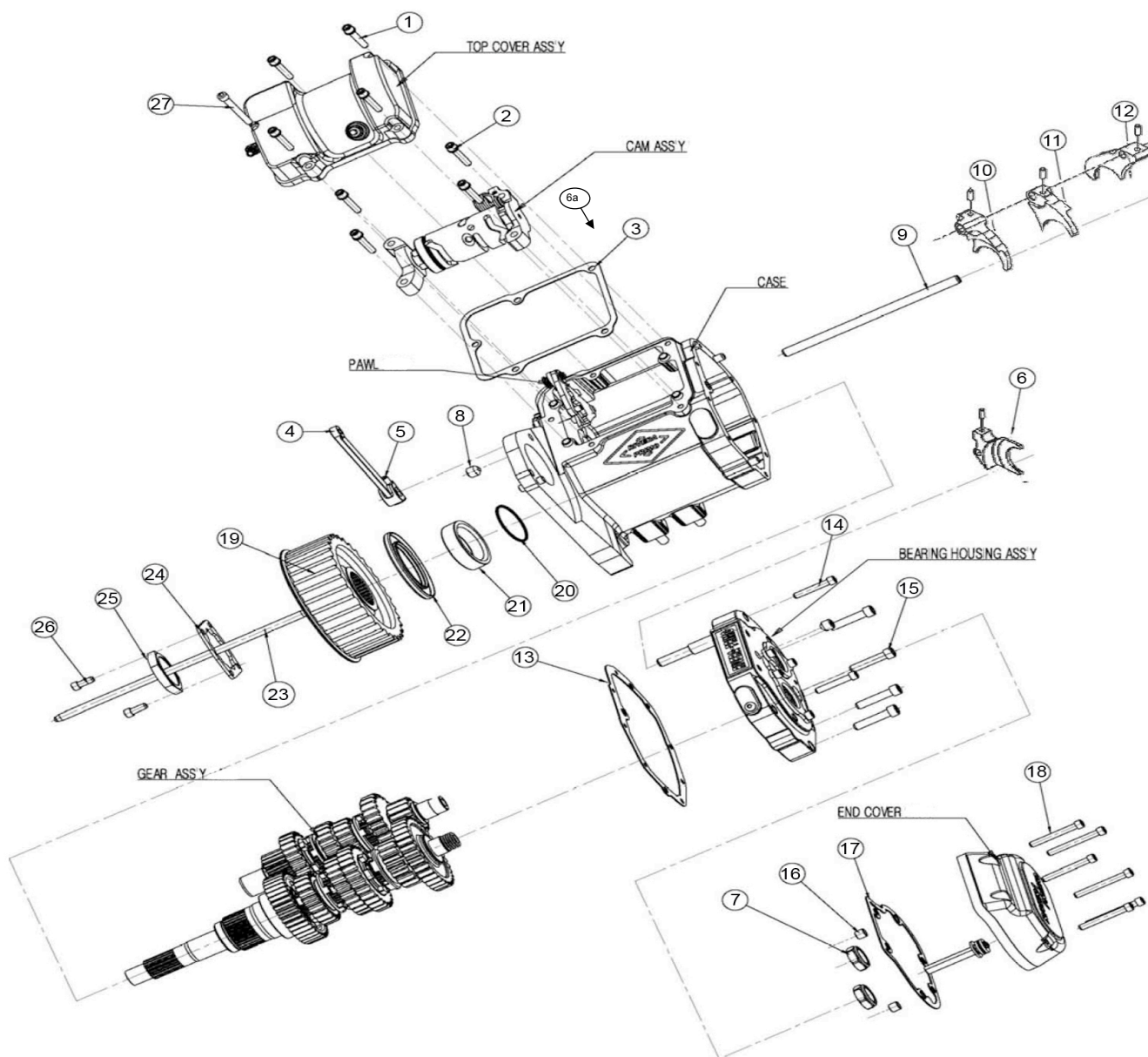
9. Install the shifter cam and fork assemblies.
10. Install the top cover with vent tube & neutral safety switch using the new gasket supplied.
11. Install the bearing inner race on the transmission main shaft if using a primary chain drive, or omit this step if using primary belt drive.
12. Install the pushrod end with the throw-out bearing in the right side of the mainshaft.
13. Install the clutch release assembly into the end cover per OE service manual.
14. Install end cover with new gasket supplied.

## **CASE MODIFICATIONS**

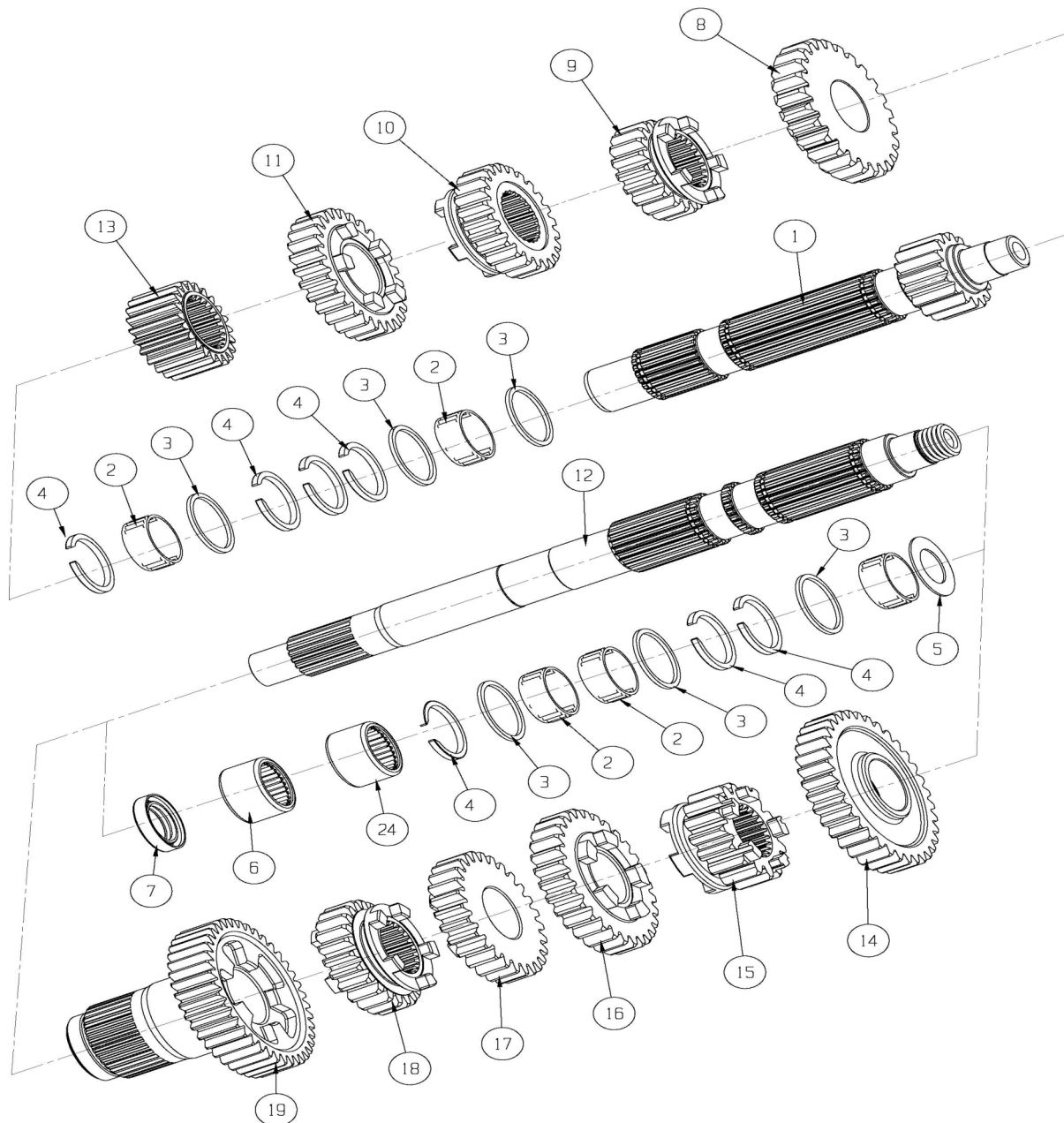
It may be necessary on some models to make a minor modification to the stock case prior to final installation of the PowerDrive™ gear set. In some cases there is a fitment issue in the upper right inside corner that requires removal of some material. (See photo below). It may also be necessary to enlarge the dowel pin holes on some OE cases to accept the dowel pins in our trap door.



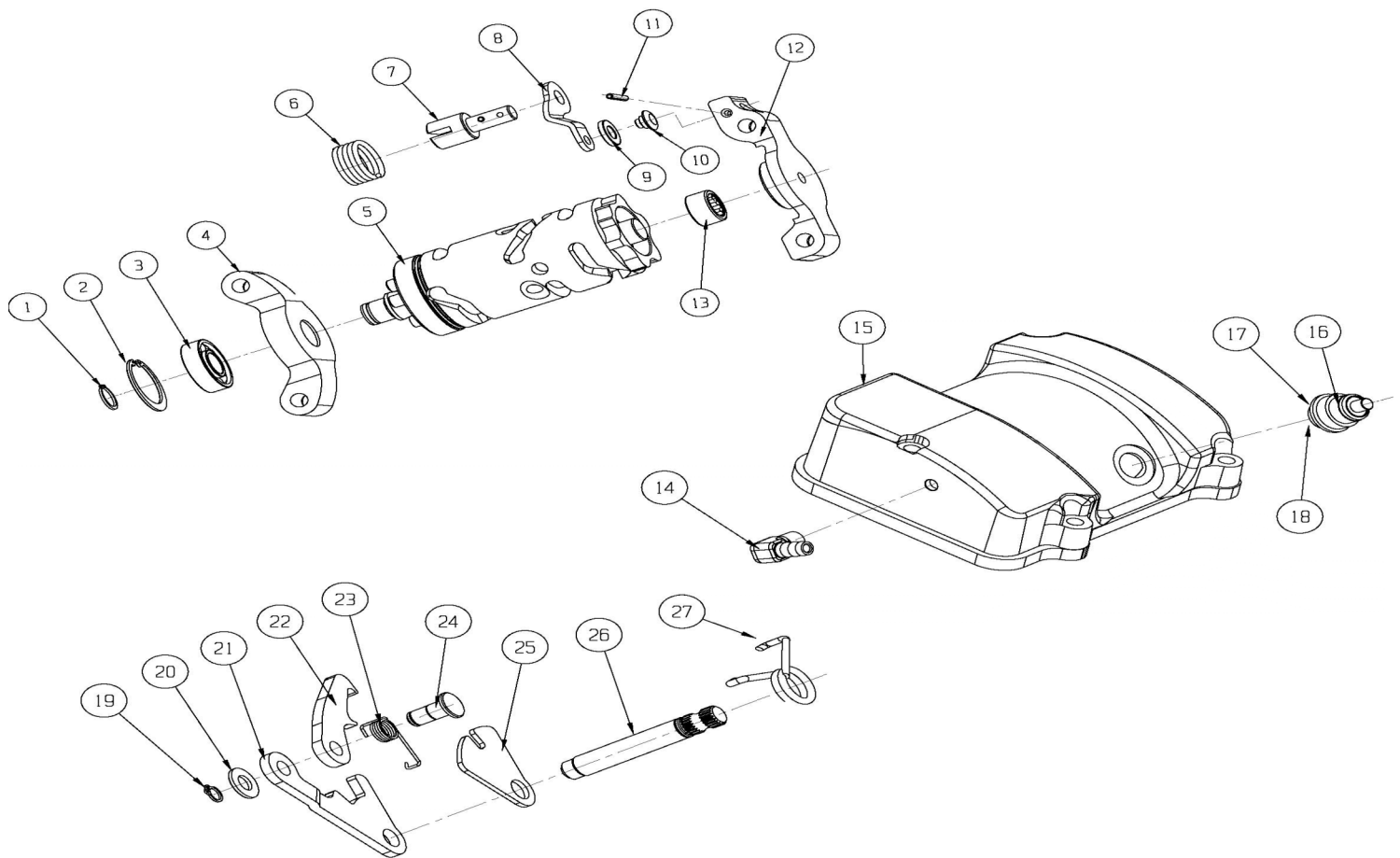




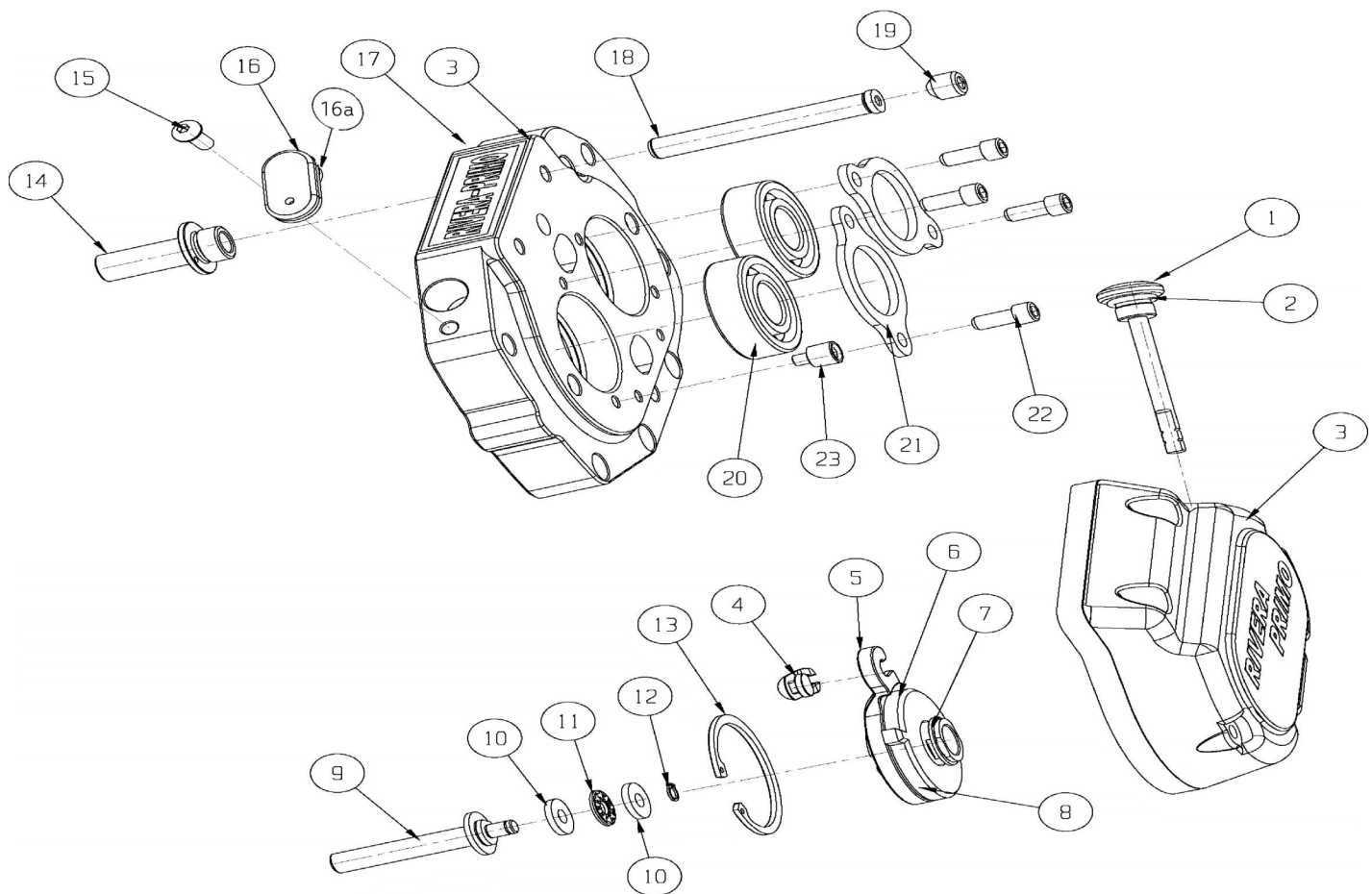
No	RPI #	PART NAME	QTY
1	1100-0080	1/4-20*1 1/4" 31.7L HSCS	4
2	1100-0081	1/4-20*2 1/4" 31L HSCS	4
3	1094-0018	TOP COVER GASKET	1
4	1217-0600	LEVER	1
5	1100-0017	5/16-24*1-25.4L SHCS	1
6	1216-0302	2M FORK	1
6a	1217-0613	FORK PIN	4
7	1100-0031	INSERT HEX NUT	2
8	1100-0020	1/2-20*1/2 SET SCREW	1
9	1219-0604	FORK SHAFT	1
10	1216-0301	3C FORK	1
11	1216-0303	4C FORK	1
12	1216-0300	1M FORK	1
13	1094-0006	TRAPDOOR GASKET	1
14	1100-0027	1/4-20*2 1/4 SHCS	3
15	1100-0028	1/4-20*1 1/4 SHCS	4
16	1217-0649	LOCATING PIN	2
17	1094-0016	GASKET END COVER	1
18	1100-0082	1/4 " SOCKET BOLT (L=55 2EA)	6
19	2223-0015	SPROCKET 32T	1
20	1148-0013	QUAD SEAL-PACKING	1
21	1217-0603	PULLEY SPACER	1
22	1179-0050	MAIN OIL SEAL	1
23	1217-0616	MAINSHAFT PUSH ROD	1
24	3217-0030	NUT LOCK PLATE	1
25	3223-0002	SPROCKET NUT	1
26	1100-0030	1/4*20 5/8 HSCS	2
27	1100-0081	1/4-20*2 1/4" HSCS	1



No	RPI PART #	PART NAME	QTY
1	1219-0602	COUNTER SHAFT	1
2	1018-0007	SPLIT CASE BEARING	5
3	1217-0703	WASHER	6
4	1101-0053	RETARNING RING	5
5	1217-0611	WASHER	1
6	1018-0008	ROOL BEARING	2
7	1179-0052	OIL SEAL	1
8	1216-0055	GEAR 1ST C/S	1
9	1216-0057	GEAR 4TH C/S	1
10	1216-0056	GEAR 3RD C/S	1
11	1216-0206	GEAR 2ND C/S	1
12	1219-0600	MAIN SHAFT	1
13	1216-0058	GEAR 5TH C/S	1
14	1216-0054	GEAR 6TH M/N	1
15	1216-0051	GEAR 1ST M/N	1
16	1216-0060	GEAR 4TH M/N	1
17	1216-0206	GEAR 3RD M/N	1
18	1216-0052	GEAR 2ND M/N	1
19	1216-0059	GEAR 5TH M/N	1

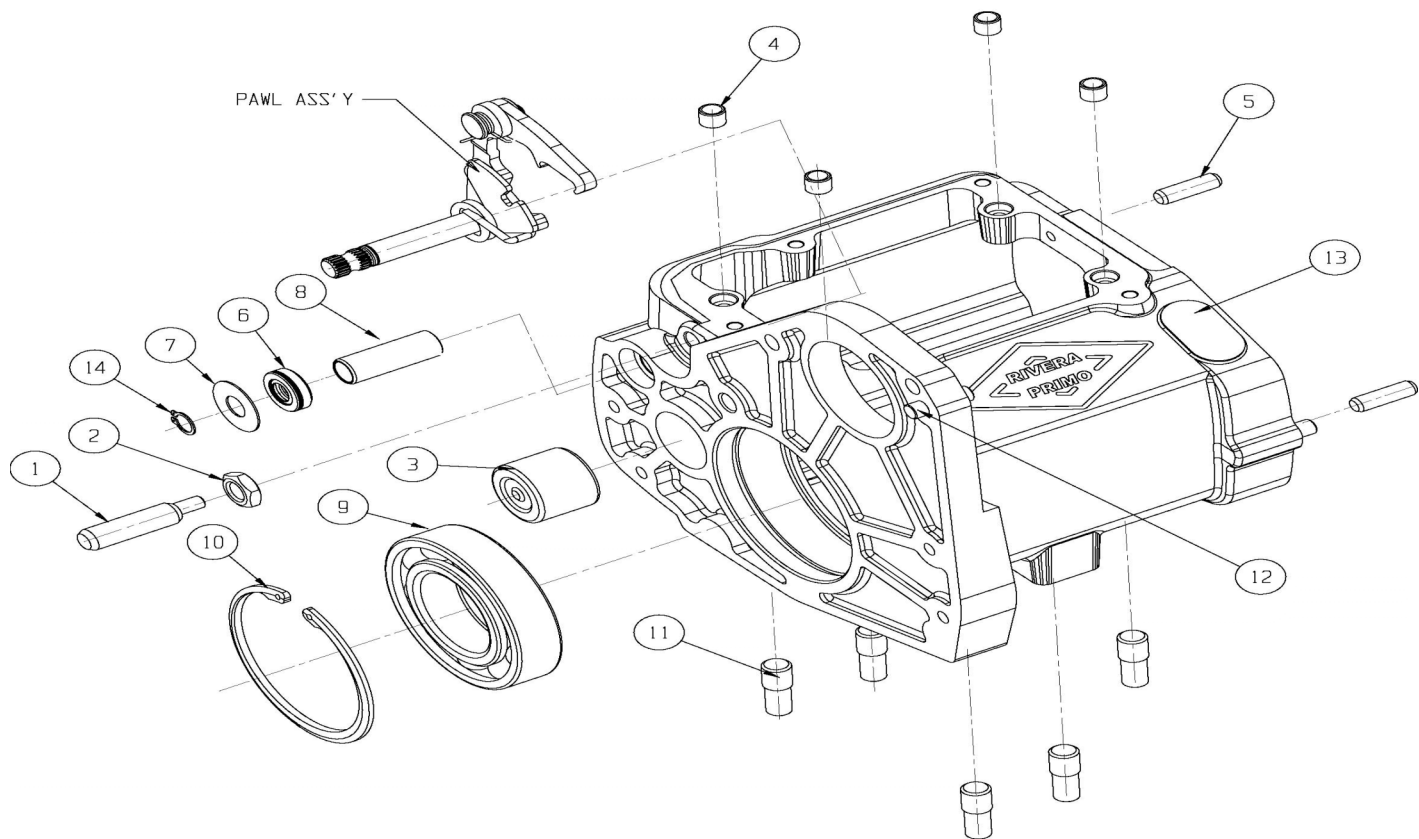


No	RPI #	PART NAME	QTY
1	1101-0061	RETAINING RING	1
2	1101-0062	RETAINING RING	2
3	1018-0016	BEARING CAM	1
4	1217-0641	SUPPORT TOWER (LH)	1
5	1217-0636	CAM LSD	1
6	1217-0645	COIL SPRING	1
7	1217-0640	SPRING HANGER	1
8	1217-0639	LINK PLATED LSD	1
9	1217-0646	LINK ROLL	1
10	1217-0644	LINK ROLL PIN	1
11	1217-0647	ROLL PIN	1
12	1217-0642	SUPPOT TOWER (RH) LSD	1
13	1018-0017	BEARING	1
14	1217-0648	ELBOW NIPPLE	1
15	1215-0013	TOP COVER	1
16	1196-0001	NEUTRAL SWITCH	1
17	1148-0023	NEUTRAL O-RING	1
18	1100-0070	NEUTRAL WASHER	1
19	1101-0032	RETAINING RING (PAWL)	1
20	1100-0038	WASHER	1
21	1217-0634	PAWL PLATED	1
22	1217-0635	PAWL	1
23	1217-0633	SPRING (PAWL)	1
24	1217-0632	PAWL PIN	1
25	1217-0630	CENTER'G PLATED	1
26	1217-0605	SHIFT SHAFT	1
27	1217-0631	SPRING (SHAFT)	1



No	RPI #	PART NAME	QTY
1	1215-0055	FILL PLUG DIPSTICK	1
2	1148-0021	FILL PLUG DIPSTICK O-RING	1
3	1215-0011	CHROME END COVER	1
4	1217-0009	CABLE CONNECTOR	1
5	1217-0606	INNER RAMP	1
6	1217-0607	OUTER RAMP	1
7	1101-0016	RETAINING RING	1
8	1018-0018	BALL BEARING	1
9	1217-0016	PUSH ROD END LH	1
10	1217-0626	BEARING THRUST WASHER	1
11	1018-0014	RETAINING RING	1
12	1101-0060	RETAINING RING	1
13	1101-0041	RETAINING RING	1
14	1217-0617	SHAFT SUPPORT	2
15	1100-0030	BUTTONHEAD BOLT	1
16	1217-0614	SPEEDO BUNG COVER ASSY.	1
16a	1148-0012	O RING, SPEEDO BUNG COVER	1
17	1215-0054	TRAP DOOR LSD	1
19	1100-0020	SET SCREW 1/2-20 UNF-12.7L	1
20	1018-0003	RADIAL BALL BEARING	2
21	1217-0612	RETAINER PLATE	2
22	1100-0029	SHC BOLT	4
23	1217-0619	DRAIN PLUG	1





No	RPI #	PART NAME	QTY
1	1100-0021	HEX JAM NUT	1
2	1217-0602	ADJUST SCREW	1
3	1018-0005	BEARING	1
4	1217-0604	ROOL PIN TOP COVER	4
5	1101-0052	DOWEL PIN	2
6	1179-0051	OIL SEAL	1
7	1100-0055	WASHER	1
8	1101-0051	LEVEL BUSHING	1
9	1018-0004	BEARING	1
10	1101-0063	RETAINING RING	1
11	1100-0019	BOTTOM STUD BOLT	5
12	1101-0052	DOWEL PIN	1
13	1215-0051	TRANSMISSION CASE LSD POLISHED	1
	1215-0058	SHOVEL HEAD TRANSMISSION CASE POLISHE	1
	1215-0050	TRANSMISSION CASE LSD BLACK	
	1215-0052	TRANSMISSION CASE LSD NATURAL	
	1215-0053	TRANSMISSION CASE LSD CHROME	